

What is claimed is:

1. An apparatus for adapting a two-dimensional (2D) or three-dimensional (3D) stereoscopic video signal for single-source multi-use, comprising:

a video usage environment information managing means for acquiring, describing and managing user characteristic information from a user terminal; and

a video adaptation means for adapting the video signal to the video usage environment information to generate an adapted 2D video signal or 3D stereoscopic video signal and outputting the adapted video signal to the user terminal.

2. The apparatus as recited in claim 1, wherein the user characteristic information includes user preference such as positive parallax or negative parallax in case of adapting a 2D video signal to a 3D stereoscopic video signal.

3. The apparatus as recited in claim 2, wherein the user characteristic information is expressed in an information structure as:

```
<element name="ParallaxType">
  <simpleType>
    <restriction base="string">
      <enumeration value="Positive"/>
      <enumeration value="Negative"/>
    </restriction>
  </simpleType>
</element>.
```

4. The apparatus as recited in claim 1, wherein the user characteristic information includes user preference such as parallax depth of a 3D stereoscopic video signal in

case of adapting a 2D video signal to a 3D stereoscopic video signal.

5        5. The apparatus as recited in claim 4, wherein the user characteristic information is expressed in an information structure as:

```
        <element  
            name="DepthRange"  
10     type="mpeg7:zeroToOneType"/> .
```

15        6. The apparatus as recited in claim 1, wherein the user characteristic information includes user preference such as the maximum number  $n$  of delayed frame  $I_{k-n}$  in case of adapting a 2D video signal to a 3D stereoscopic video signal.

20        7. The apparatus as recited in claim 6, wherein the user characteristic information is expressed in an information structure as:

```
        <element  
            name="MaxDelayedFrame"  
25     type="nonNegativeInteger"/>.
```

30        8. The apparatus as recited in claim 1, wherein the user characteristic information includes user preference such as which image signal to choose as a 2D video signal in case of adapting a 3D stereoscopic video signal to a 2D video signal.

35        9. The apparatus as recited in claim 8 wherein the user characteristic information is expressed in an information structure as:

```
        <element name="LeftRightInterVideo">
```

```
<simpleType>
  <restriction base="string">
    <enumeration value="Left"/>
    <enumeration value="Right"/>
5    <enumeration value="Intermediate"/>
  </restriction>
</simpleType>
</element>.
```

10        10. An apparatus for adapting a 2D video signal or a 3D stereoscopic video signal for single-source multi-use, comprising:

         a video usage environment information managing means for acquiring, describing and managing user terminal  
15 characteristic information from a user terminal; and

         a video adaptation means for adapting the video signal to the video usage environment information to generate an adapted 2D video signal or 3D stereoscopic video signal and outputting the adapted video signal to the  
20 user terminal.

         11. The apparatus as recited in claim 10, wherein the user characteristic information includes information on display device supported by the user terminal.

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         12. The apparatus as recited in claim 11, wherein the user characteristic information is expressed in an information structure as:

```
30        <element name="DisplayDevice">
         <simpleType>
         <restriction base="string">
         <enumeration value="Monoscopic"/>
         <enumeration value="Stereoscopic"/>
35        </restriction>
         </simpleType>
```

</element>.

13. The apparatus as recited in claim 10, wherein the user characteristic information includes information on a 3D video decoder.

14. The apparatus as recited in claim 13, wherein the user characteristic information is expressed in an information structure as:

10

```
<element name="StereoscopicDecoderType"
      type="mpeg7:ControlledTermUseType"/>.
```

15. The apparatus as recited in claim 10, wherein the user characteristic information includes information on rendering method of 3D video.

16. The apparatus as recited in claim 15, wherein the user characteristic information is expressed in an information structure as:

```
<element name="RenderingFormat">
  <simpleType>
    <restriction base="string">
      <enumeration value="Interlaced"/>
      <enumeration value="Sync-Double"/>
      <enumeration value="Page-Flipping"/>
      <enumeration value="Anaglyph-Red-Blue"/>
      <enumeration value="Anaglyph-Red-Cyan"/>
      <enumeration value="Anaglyph-Red-Yellow"/>
    </restriction>
  </simpleType>
</element>.
```

17. A method for adapting a 2D video signal or a 3D stereoscopic video signal for single-source multi-use,

comprising the steps of:

a) acquiring, describing and managing user characteristic information from a user terminal; and

5 b) adapting the video signal to the video usage environment information to generate an adapted 2D video signal or 3D stereoscopic video signal and outputting the adapted video signal to the user terminal.

10 18. The method as recited in claim 17, wherein the user characteristic information includes user preference such as positive parallax or negative parallax in case of adapting a 2D video signal to a 3D stereoscopic video signal.

15 19. The method as recited in claim 18, wherein the user characteristic information is expressed in an information structure as:

```
20 <element name="ParallaxType">
    <simpleType>
        <restriction base="string">
            <enumeration value="Positive"/>
            <enumeration value="Negative"/>
        </restriction>
25 </simpleType>
    </element>.
```

30 20. The method as recited in claim 17, wherein the user characteristic information includes user preference such as parallax depth of 3D stereoscopic video signal in case of adapting a 2D video signal to a 3D stereoscopic video signal.

35 21. The apparatus as recited in claim 20, wherein the user characteristic information is expressed in an information structure as:

```
<element
    name="DepthRange"
type="mpeg7:zeroToOneType"/> .
```

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22. The apparatus as recited in claim 17, wherein the user characteristic information includes user preference such as the maximum number  $n$  of delayed frame  $I_{k-n}$  in case of adapting a 2D video signal to a 3D stereoscopic video

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23. The method as recited in claim 22, wherein the user characteristic information is expressed in an information structure as:

15

```
<element
    name="MaxDelayedFrame"
type="nonNegativeInteger"/>.
```

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24. The apparatus as recited in claim 17, wherein the user characteristic information includes user preference such as which image signal to choose as 2D video signal in case of adapting a 3D stereoscopic video signal to a 2D video signal.

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25. The method as recited in claim 24, wherein the user characteristic information is expressed in an information structure as:

30

```
<element name="LeftRightInterVideo">
  <simpleType>
    <restriction base="string">
      <enumeration value="Left"/>
      <enumeration value="Right"/>
      <enumeration value="Intermediate"/>
    </restriction>
```

35

```
</simpleType>
</element>.
```

26. A method for adapting a 2D video signal or a 3D stereoscopic video signal for single-source multi-use, comprising the steps of:

a) acquiring, describing and managing user terminal characteristic information from a user terminal; and

b) adapting the video signal to the video usage environment information to generate an adapted 2D video signal or 3D stereoscopic video signal and outputting the adapted video signal to the user terminal.

27. The method as recited in claim 26, wherein the user characteristic information includes information on a display device supported by the user terminal.

28. The method as recited in claim 27, wherein the user characteristic information is expressed in an information structure as:

```
<element name="DisplayDevice">
  <simpleType>
    <restriction base="string">
      <enumeration value="Monoscopic"/>
      <enumeration value="Stereoscopic"/>
    </restriction>
  </simpleType>
</element> .
```

29. The method as recited in claim 26, wherein the user characteristic information includes information on a 3D video decoder.

30. The method as recited in claim 29, wherein the user characteristic information is expressed in an

information structure as:

```
<element name="StereoscopicDecoderType"
      type="mpeg7:ControlledTermUseType"/>.
```

5

31. The method as recited in claim 26, wherein the user characteristic information includes information on rendering method of 3D video.

10

32. The method as recited in claim 31, wherein the user characteristic information is expressed in an information structure as:

```
<element name="RenderingFormat">
  <simpleType>
    <restriction base="string">
      <enumeration value="Interlaced"/>
      <enumeration value="Sync-Double"/>
      <enumeration value="Page-Flipping"/>
      <enumeration value="Anaglyph-Red-Blue"/>
      <enumeration value="Anaglyph-Red-Cyan"/>
      <enumeration value="Anaglyph-Red-Yellow"/>
    </restriction>
  </simpleType>
</element>.
```

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33. A computer-readable recording medium for recording a program that implements a method for adapting a 2D video signal or a 3D stereoscopic video signal for single-source multi-use, the method comprising the steps of:

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a) acquiring, describing and managing user characteristic information from a user terminal; and

b) adapting the video signal to the video usage environment information to generate an adapted 2D video signal or 3D stereoscopic video signal and outputting the adapted video signal to the user terminal.

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34. A computer-readable recording medium for recording a program that implements a method for adapting a 2D video signal or a 3D stereoscopic video signal for single-source multi-use, the method comprising the steps of:

a) acquiring, describing and managing user terminal characteristic information from a user terminal; and

b) adapting the video signal to the video usage environment information to generate an adapted 2D video signal or 3D stereoscopic video signal and outputting the adapted video signal to the user terminal.